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10/659,805	09/11/2003	Zakar Raffi Hachikian	ITW 0006 IA/41038.9/14350	5226
51635 7590 08/22/2008 DINSMORE & SHOHL LLP ONE DAYTON CENTRE, ONE SOUTH MAIN STREET SUITE 1300 DAYTON, OH 45402-2023			EXAMINER FEELY, MICHAEL J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/659,805	Applicant(s) HACHIKIAN, ZAKAR RAFFI	
	Examiner Michael J. Feely	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6, 10-16, 18-23, 25-33, 35-43 and 45-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5, 10, 12, 14, 19, 20, 22, 23, 25-29, 31, 32, 35, 37, 43, 45 and 47-59 is/are rejected.
- 7) ☒ Claim(s) 6, 11, 13, 15, 16, 18, 21, 30, 33, 36, 38-42 and 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Pending Claims

Claims 2-6, 10-16, 18-23, 25-33, 35-43, and 45-59 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 5, 2008 has been entered.

Response to Amendment

2. The rejection of claims 9 and 34 under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gordon (US Pat. No. 6,645,341) has been rendered moot by the cancellation of these claims.

3. The rejection of claims 2, 20, 22, 25, 26, 49, 50, and 53-56 under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gordon (US Pat. No. 6,645,341) has been overcome by amendment.

4. The rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Gordon (US Pat. No. 6,645,341) has been rendered moot by the cancellation of this claim.

5. The rejection of claims 31 under 35 U.S.C. 103(a) as being unpatentable over Gordon (US Pat. No. 6,645,341) has been overcome by amendment.

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6. The rejection of claims 47, 48, 51, and 52 under 35 U.S.C. 103(a) as being unpatentable over Gordon (US Pat. No. 6,645,341) in view of Cunliffe et al. (US Pat. No. 4,107,142) has been overcome by amendment.

Allowable Subject Matter

7. The indicated allowability of claims 8 and 17 has been rendered moot by the cancellation of these claims.

8. The indicated allowability of claims 3-5, 10, 12, 14, 19, 27-29, 32, 35, 37, 45, and 57 is withdrawn in view of the newly discovered reference(s) to Wanthal (US Pat. No. 5,075,034).

Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 23, 31, 43, 49, and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amendment to claim 55 has created a 112, 2nd paragraph, issue with claim 49, and the amendment to claim 56 has created a 112, 2nd paragraph, issue with claim 53. The limitations of claims 49 and 53 broaden the scope of the flexibilizer featured in the hardener component of claims 55 and 56 (selected from amine terminated butadiene acrylonitrile adducts or caboxyl terminated butadiene acrylonitrile adducts) to include generic butadiene acrylonitrile flexibilizers

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(not explicitly functionally terminated adducts). In light of this, the scope of claims 49 and 53 is indefinite. Furthermore, it is not explicitly clear if the amine terminated butadiene acrylonitrile flexibilizers set forth in claims 50 and 54 are "adducts".

New claim 58 has created a 112, 2nd paragraph, issue with claim 23, and new claims 59 has created a 112, 2nd paragraph, issue with claim 43. The limitations of claims 23 and 43 broaden the lower weight percent limit of unmodified glycol ether base aliphatic amine from 8% to 7% (range of 8-45% limited by range of 7-15%). In light of this, the scope of claims 23 and 43 is indefinite.

The amendment to claim 56 has created a 112, 2nd paragraph, issue with claim 31. The limitations of claim 31 broaden the scope of the *specific materials*: (flexibilizer, unmodified aliphatic amine, accelerator, and modified aliphatic amine) featured in the hardener component of claims 56 to include a *generic* flexibilizer, a *generic* unmodified aliphatic amine, a *generic* accelerator, and a *generic* modified aliphatic amine. In light of this, the scope of claim 31 is indefinite.

Claim Rejections - 35 USC § 103

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 12, 22, 37, 58, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034).

Regarding claims 12, 22, and 58, Wanthal discloses: **(58)** a two-part epoxy adhesive (Abstract) comprising: a) a resin component comprising a mixture of epoxy resin (column 2,

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lines 42-52; column 3, lines 25-28: *see mixtures thereof*), and an internally flexibilized epoxy resin (column 2, lines 42-52; column 3, lines 25-28: *see mixtures thereof and glycidyl ethers of polyalkylene glycols*); and b) a hardener component comprising a mixture by weight of:

30-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts (column 3, lines 60-68);

8-45% unmodified aliphatic amine, wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine (column 3, lines 42-50: *see polyether polyamines*);

0-15% modified aliphatic amine, wherein said modified aliphatic amine comprises an AEP base modified amine (*range includes zero; hence, material is optional*);

0-15% unmodified or modified polyamide (*range includes zero; hence, material is optional*);

1-10% accelerator, wherein said accelerator is a tertiary amine accelerator (column 3, lines 51-59; column 5, lines 8-34); and

optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator (*optional; see also column 3, lines 57-59; column 2, lines 53-55*);

and wherein said resin component is free of nonylphenol (*reference silent regarding nonylphenol*) and said hardener component is free of nonylphenol (*reference silent regarding nonyl phenol*);

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(12) wherein said hardener component further includes said plasticizer/accelerator that acts as both a plasticizer and an accelerator, said plasticizer/accelerator being free of nonylphenol (column 3, lines 57-59; column 2, lines 53-55), and a thixotropic agent (column 4, lines 5-25);

Regarding claims 37 and 59, Wanthal discloses: (59) a process of adhering at least two substrate surfaces to each other (Abstract) comprising: intercalating between said surfaces an adhesive (Abstract; column 5, lines 48-56) comprising a reactive mixture of: a) a resin component comprising a mixture of epoxy resin (column 2, lines 42-52; column 3, lines 25-28: *see mixtures thereof*), and internally flexible epoxy resin (column 2, lines 42-52; column 3, lines 25-28: *see mixtures thereof and glycidyl ethers of polyalkylene glycols*); and b) a hardener component comprising a mixture by weight of:

30-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts (column 3, lines 60-68);

8-45% unmodified aliphatic amine, wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine (column 3, lines 42-50: *see polyether polyamines*);

0-15% modified aliphatic amine, wherein said modified aliphatic amine comprises an AEP base modified amine (*range includes zero; hence, material is optional*);

0-15% unmodified or modified polyamide (*range includes zero; hence, material is optional*);

1-10% accelerator, wherein said accelerator is a tertiary amine accelerator (column 3, lines 51-59; column 5, lines 8-34); and

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optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator (*optional; see also column 3, lines 57-59; column 2, lines 53-55*); and

allowing said adhesive to cure (Abstract; column 5, lines 48-56), and wherein said resin component is free of nonylphenol (*reference silent regarding nonylphenol*) and said hardener component is free of nonylphenol (*reference silent regarding nonylphenol*);

(37) wherein said hardener component free of nonylphenol further includes said plasticizer/accelerator that acts as both a plasticizer and an accelerator, said plasticizer/accelerator being free of nonylphenol (column 3, lines 57-59; column 2, lines 53-55), and a thixotropic agent (column 4, lines 5-25).

Wanthal fails to explicitly disclose: **(58 & 59)** a resin component comprising a mixture of epoxy resin and internally flexible epoxy resin. Rather, they disclose a list of candidate epoxy materials (*see column 2, lines 42-52; column 3, lines 25-28*). This list includes glycidyl ethers of polyalkylene glycols, which are internally flexibilized due to their oxyalkylene structure.

Furthermore, they contemplate *mixtures* of said epoxy resins.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a mixture of epoxy resin and internally flexible epoxy resin in the resin component of Wanthal because they disclose a list of candidate epoxy resins including glycidyl ethers of polyalkylene glycols, which are internally flexibilized due to their oxyalkylene structure. Furthermore, they contemplate *mixtures* of said epoxy resins.

Wanthal fails to explicitly disclose: **(58 & 59)** wherein after said resin component and said hardener component are mixed and reacted, the cured epoxy adhesive has a tensile elongation at room temperature of greater than 30%; and **(22)** wherein the epoxy adhesive has a

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tensile elongation at room temperature of greater than 80%. However, it appears that this would have been inherently satisfied by Wanthal because Wanthal satisfies all of the chemical/material limitations set forth in the instant claims. It has been found that, “Products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present – *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, the teachings of Wanthal would have inherently satisfied the instantly claimed property limitation of having a tensile elongation at room temperature of greater than 30% or 80% because they satisfy all of the chemical/material limitations of the instant claims.

Wanthal also fails to explicitly disclose: (22) wherein the reactive mixture of said resin component and said hardener component has an initial curing time of about 1.5-2 hours. However, it appears that this would have been inherently satisfied by Wanthal, given the proper curing conditions, because he satisfies all the chemical/material limitations of the instant invention.

Therefore, the adhesive of Wanthal would have been inherently capable of having an initial cure time of from 1.5-2 hours, given the proper curing conditions, because he satisfies all the chemical/material limitations of the instant invention.

13. Claims 10, 14, 35, 45, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034) in view of Martin (US Pat. No. 6,572,971).

Regarding claims 45 and 57, Wanthal discloses: (57) a process for making a two-part epoxy adhesive comprising: preparing a resin component by mixing:

- an epoxy resin (column 2, lines 42-52; column 3, lines 25-38: *see mixtures thereof*),
- an internally flexibilized epoxy resin (column 2, lines 42-52; column 3, lines 25-38: *see mixtures thereof and glycidyl ethers of polyalkylene glycols*),
- a plasticizer/accelerator that acts as both a plasticizer and an accelerator (column 2, line 53-55),
- fillers (column 3, lines 21-32), and
- a thixotropic agent (column 3, lines 21-32); and

preparing a hardener component comprising a mixture by weight of:

- 20-80% flexibilizer (column 3, lines 60-68);
- 5-45% unmodified aliphatic amine (column 3, lines 42-50: *see polyether polyamines*);
- 0-50% modified aliphatic amine (*range includes zero; hence, material is optional*);
- 0-15% unmodified or modified polyamide (*range includes zero; hence, material is optional*);
- 1-10% accelerator (column 3, lines 51-59; column 5, lines 8-34); and
- optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator (*optional; see also column 3, lines 57-59; column 2, lines 53-55*);

(45) wherein said resin component is free of nonylphenol (*reference silent regarding nonylphenol*) and said hardener component is free of nonylphenol (*reference silent regarding nonylphenol*).

Regarding claims 10 and 14, Wanthal discloses: (10) the adhesive of claim 58 wherein said resin component further includes fillers (column 3, lines 21-25), a thixotropic agent (column 3, lines 25-32), and a plasticizer/accelerator that acts as both a plasticizer and an accelerator wherein said plasticizer/accelerator is free of nonylphenol (column 2, line 53-55); (14) wherein said resin component comprises by weight: 30-75% epoxy resin (column 2, lines 42-52; column 5, lines 8-34: *see mixtures thereof totaling a majority of the resin component*); 5-40% internally flexibilized epoxy resin (column 2, lines 42-52; column 5, lines 8-34: *see mixtures thereof totaling a majority of the resin component; and glycidyl ethers of glycols*); 5-40% plasticizer/accelerator that acts as both a plasticizer and an accelerator wherein said plasticizer/accelerator is free of nonylphenol (column 2, lines 53-55), 11-45% filler (column 3, lines 21-32), and 1-8 % thixotropic agent (column 3, lines 21-32).

Regarding claim 35, Wanthal discloses: (35) the adhesive of claim 59 wherein said resin component free of nonylphenol further includes fillers (column 3, lines 21-32), a thixotropic agent (column 3, lines 21-32), and said plasticizer/accelerator that acts as both a plasticizer and an accelerator wherein said plasticizer/accelerator is free of nonylphenol (column 2, lines 53-55).

Wanthal fails to disclose: (10, 35, 57) wherein said resin component further includes a coupling agent; and (14) wherein said resin component further includes 0.1-1% coupling agent.

Martin discloses a similar two-part adhesive composition (*see Abstract; column 2, lines 12-38*). The resin component features filler (*see column 4, lines 30-44; column 5, lines 50-60*)

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used in concert with a silane coupling agent (*see column 3, lines 25-39; column 5, lines 50-60*).

It is advantageously used in small quantities to enhance the adhesion properties of the adhesive composition (*see column 3, lines 25-39*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a coupling agent, as taught by Martin, in the resin component of Wanthal because Martin uses both a silane coupling agent and filler in his resin component, wherein small quantities of the coupling agent are used to enhance the adhesion properties of the adhesive composition.

14. Claims 2, 4, 19, 20, 25, 26, 28, 31, 32, 49, 50, and 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034) in view of Goel et al. (US Pat. No. 4,762,864). The teachings of Wanthal are as set forth above and incorporated herein.

Regarding claims 2, 4, 20, 49, 50, and 55, Wanthal discloses: **(55)** a two-part epoxy adhesive (Abstract) comprising: a) a resin component comprising a mixture of epoxy resin (column 2, lines 42-52; column 3, lines 25-38: *see mixtures thereof*), and an internally flexibilized epoxy resin (column 2, lines 42-52; column 3, lines 25-38: *see mixtures thereof and glycidyl ethers of polyalkylene glycols*); and b) a hardener component comprising a mixture by weight of:

20-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts (column 3, lines 60-68);

5-30% unmodified aliphatic amine (column 3, lines 42-50: *see polyether polyamines*) or 10-50% modified aliphatic amine (column 3, lines 42-50: *see piperazine ring containing aliphatic amines*);

0-15% unmodified or modified polyamide (*range includes zero; hence, material is optional*);

1-10% accelerator wherein said accelerator comprises a tertiary amine accelerator (column 3, lines 51-59; column 5, lines 8-34); and

optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator (*optional; see also column 3, lines 57-59; column 2, lines 53-55*);

(2) wherein the epoxy adhesive has an initial curing time of less than 3 hours (Abstract; column 5, lines 48-56);

(4) wherein said hardener component further includes said plasticizer/accelerator that acts as both a plasticizer and an accelerator (column 3, lines 57-59; column 2, lines 53-55), and a thixotropic agent (column 4, lines 5-25);

(49) wherein the flexibilizer is selected from butadiene acrylonitrile flexibilizers (column 3, lines 60-68); and

(50) wherein the flexibilizer is selected from amine terminated butadiene acrylonitrile flexibilizers (column 3, lines 60-68).

Regarding claims 25, 26, 28, 31, 32, 53, 54, and 56, Wanthal discloses: (56) a process of adhering at least two substrate surfaces to each other (Abstract) comprising: intercalating between said surfaces an adhesive (Abstract; column 5, lines 48-56) comprising a reactive mixture of: a) a resin component comprising a mixture of epoxy resin (column 2, lines 42-52;

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column 3, lines 25-38: *see mixtures thereof*), and internally flexible epoxy resin (column 2, lines 42-52; column 3, lines 25-38: *see mixtures thereof and glycidyl ethers of polyalkylene glycols*); and b) a hardener component comprising a mixture by weight of:

20-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts (column 3, lines 60-68);

5-30% unmodified aliphatic amine (column 3, lines 42-50: *see polyether polyamines*) or 10-50% modified aliphatic amine (column 3, lines 42-50: *see piperazine ring containing aliphatic amines*);

0-15% unmodified or modified polyamide (*range includes zero; hence, material is optional*),

1-10% accelerator, wherein said accelerator is a tertiary amine accelerator (column 3, lines 51-59; column 5, lines 8-34); and

optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator (*optional; see also column 3, lines 57-59; column 2, lines 53-55*); and

allowing said adhesive to cure (Abstract; column 5, lines 48-56);

(25) wherein in said curing it takes less than 3 hours for initial curing (Abstract; column 5, lines 48-56);

(26) wherein said act of intercalating includes dispensing said resin component and hardener component in equal parts by volume and mixing until the mixture is relatively homogeneous (column 5, lines 48-56) and is applied relatively evenly to the substrates (column 5, lines 48-56);

(28) wherein said hardener component further includes said plasticizer/accelerator that acts as both a plasticizer and an accelerator (column 3, lines 57-59; column 2, lines 53-55), and a thixotropic agent (column 4, lines 5-25);

(31) wherein said hardener component comprises by weight: 20-80% flexibilizer (column 3, lines 60-68); 5-30% unmodified aliphatic amine (column 3, lines 42-50: *see polyether polyamines*) or 10-50% modified aliphatic amine (column 3, lines 42-50: *see piperazine ring containing aliphatic amines*); 1-10% accelerator (column 3, lines 51-59; column 5, lines 8-34); and 1-8% thixotropic agent (column 4, lines 5-25); (32) wherein said flexibilizer is an amine terminated butadiene acrylonitrile adduct (column 3, lines 60-68); said unmodified aliphatic amine is an unmodified glycol ether base aliphatic amine (column 3, lines 42-50: *see polyether polyamines*); and said accelerator is a tertiary amine accelerator (column 3, lines 51-59);

(53) wherein the flexibilizer is selected from butadiene acrylonitrile flexibilizers (column 3, lines 60-68); and

(54) wherein the flexibilizer is selected from amine terminated butadiene acrylonitrile flexibilizers (column 3, lines 60-68).

Regarding claim 19, Wanthal discloses: (19) the adhesive of claim 58 wherein said flexibilizer is an amine terminated butadiene acrylonitrile adduct (column 3, lines 60-68), and said unmodified aliphatic amine is an unmodified glycol ether base aliphatic amine (column 3, lines 42-50: *see polyether polyamines*).

Wanthal fails to disclose: (55, 56, 31, 32) wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine; **and** wherein said modified aliphatic amine comprises an AEP base modified amine; and (19) said unmodified aliphatic amine is a

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mixture of an unmodified glycol ether base aliphatic amine and unmodified AEP base aliphatic amine. Rather, Wanthal discloses: "The second component which is designated the hardener component comprises 5 to 80 percent aromatic ring containing aliphatic polyamine preferably Cardolite NC-540. Other *commonly used amines can be used* as the curing agent. Examples of such are dimer and trimer acid based polyamides, polymethylene diamines, *piperazine ring containing aliphatic amines*. Mannich base curing agents based on cycloaliphatic amines, *polyether amines*, and polyamines such as DETA," (*see column 3, lines 42-50*). The piperazine ring containing aliphatic amines relate to the instantly claimed modified/unmodified AEP base amine, and the polyether amines relate to the instantly claimed unmodified glycol ether base aliphatic amine.

Goel et al. disclose a similar adhesive (*see Abstract*). Their hardener features: a combination of a polyether amine (*column 3, lines 26-58: see "a" and "b"*) and a low molecular weight amine, such as aminoethylpiperazines (AEP) (*column 3, lines 26-58: see "c"*), along with a plasticizer/accelerator (*column 3, lines 26-58: see "d"*) and a tertiary amine accelerator (*column 3, lines 26-58: see "e"*). This teaching demonstrates that the instantly claimed combination of amine hardeners, along with the instantly claimed accelerators and plasticizers/accelerators, are recognized in the art as a suitable hardener component for this type of adhesive. In light of this, it has been found that the selection of known material based on its suitability for its intended use supports a *prima facie* obviousness determination – *see MPEP 2144.07*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the instantly claimed combination of amine hardeners, as taught by Goel et al., in the hardener component of Wanthal because the teachings of Goel et al. demonstrate that the

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instantly claimed combination of amine hardeners, along with the instantly claimed accelerators and plasticizers/accelerators, are recognized in the art as a suitable hardener component for this type of adhesive.

The combined teachings of Wanthal and Goel et al. are as set forth above and incorporated herein. The combined teachings fail to explicitly disclose: **(55 & 56)** wherein after said resin component and said hardener component are mixed and reacted, the cured epoxy adhesive has a tensile elongation at room temperature of greater than 30%; **(20)** wherein after curing the epoxy adhesive has a tensile elongation at room temperature of greater than 120%. However, it appears that this would have been inherently satisfied by the combined teachings of Wanthal and Goel et al. because the combined teachings of Wanthal and Goel et al. satisfy all of the chemical/material limitations set forth in the instant claims. It has been found that, “Products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present – *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, the combined teachings of Wanthal and Goel et al. would have inherently satisfied the instantly claimed property limitation of having a tensile elongation at room temperature of greater than 30% or 120% because they satisfy all of the chemical/material limitations of the instant claims.

The combined teachings also fail to explicitly disclose: **(20)** wherein the reactive mixture of said resin component and said hardener component has an initial curing time of about 1.5-2 hours. However, it appears that this would have been inherently satisfied by the combined

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teachings, given the proper curing conditions, because the combined teachings of Wanthal and Goel et al. satisfy all the chemical/material limitations of the instant invention.

Therefore, the adhesive of combined teachings of Wanthal and Goel et al. would have been inherently capable of having an initial cure time of from 1.5-2 hours, given the proper curing conditions, because the combined teachings satisfy all the chemical/material limitations of the instant invention.

15. Claims 3, 5, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Wanthal (US Pat. No. 5,075,034) and Goel et al. (US Pat. No. 4,762,864) in view of Martin (US Pat. No. 6,572,971).

Regarding claims 3, 5, 27, and 29, the combined teachings of Wanthal and Goel et al. are as set forth above and incorporated herein. The combined teachings fail to disclose: **(3 & 27)** wherein said resin component further includes a coupling agent; and **(5 & 29)** wherein said resin component further includes 0.1-1% coupling agent.

Martin discloses a similar two-part adhesive composition (*see Abstract; column 2, lines 12-38*). The resin component features filler (*see column 4, lines 30-44; column 5, lines 50-60*) used in concert with a silane coupling agent (*see column 3, lines 25-39; column 5, lines 50-60*). It is advantageously used in small quantities to enhance the adhesion properties of the adhesive composition (*see column 3, lines 25-39*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a coupling agent, as taught by Martin, in the resin component of the combined teachings of Wanthal and Goel et al. because Martin uses both a silane coupling agent and filler

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in his resin component, wherein small quantities of the coupling agent are used to enhance the adhesion properties of the adhesive composition.

16. Claims 47, 48, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Wanthal (US Pat. No. 5,075,034) and Goel et al. (US Pat. No. 4,762,864) in view of Cunliffe et al. (US Pat. No. 4,107,142).

Regarding claims 47, 48, 51, and 52, the combined teachings of Wanthal and Goel et al. are as set forth above and incorporated herein. The combined teachings fail to disclose: **(47 & 51)** wherein the internally flexibilized epoxy resin is selected from internally flexibilized bisphenol A type epoxy resins and internally flexibilized bisphenol F type epoxy resins; **(48 & 52)** wherein the internally flexibilized epoxy resin is a butylated bisphenol A epoxy resin.

Cunliffe et al. disclose epoxide materials suitable for use in flexible adhesives that are prepared by reacting a diene, such as butadiene or isoprene, with a diepoxide, such as DGBA (*bisphenol-A epoxy*). They further disclose, “These products may be cured with conventional epoxide curing agents to give an internally flexibilized adhesive having useful combinations of tensile and shear strengths,” (Abstract). In light of this, it has been found that the selection of known material based on its suitability for its intended use supports a *prima facie* obviousness determination – see *MPEP 2144.07*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a butylated bisphenol-A epoxy resin, as taught by Cunliffe et al., in the combined teachings of Wanthal and Goel et al. because Cunliffe et al. disclose that these materials are suitable for use in flexible adhesives and are cured with conventional epoxide

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curing agents to give an internally flexibilized adhesive having useful combinations of tensile and shear strengths.

Response to Arguments

17. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

18. Claims 6, 11, 13, 15, 16, 18, 21, 30, 33, 36, 38-42, and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. Claims 23 and 43 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 6, 16, 21, 23, 30, 33, 40, 43, Wanthal represents the closest prior art; however, he fails to teach or suggest that said filler is a mixture of limestone filler and white pigment. Conductive carbon black is an essential component in Wanthal, which appears to yield a black-colored product. They disclose the use of additional fillers; however, there is no reasonable teaching or suggestion to add a combination of limestone filler and white pigment, *particularly white pigment*, to this black-colored material.

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Regarding claims 11, 13, 15, 18, 23, 36, 38, 39, 41, 42, 43, 46, Wanthal represents the closest prior art; however, they fail to teach or suggest that said plasticizer/accelerator free of nonylphenol is *dinonylphenol*.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/
Primary Examiner, Art Unit 1796

August 13, 2008